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THE

ONTARIO WATER RESOURCES

COMMISSION

WATER POLLUTION SURVEY

of the

TOWNSHIP OF BINBROOK

COUNTY OF WENTWORTH

1968

TOWNSHIP OF BINBROOK - 1968
COUNTY OF WENTWORTH

TD
380
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1968
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**TD
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1968**

Report on a water pollution
survey of the township of
Binbrook, county of Wentworth.

80366

R E P O R T

on a

WATER POLLUTION SURVEY

of the

TOWNSHIP OF BINBROOK

County of Wentworth

Division of Sanitary Engineering

1968

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R E P O R T

ONTARIO WATER RESOURCES COMMISSION

INTRODUCTION

A water pollution survey was carried out in the Township of Binbrook by the Sanitary Engineering Division of the Commission. The sampling portion of the survey was performed at various times between September 9 and September 13, 1968, and interviews with local officials were held on September 10, 1968. Most of the samples were collected in wet weather.

The purpose of the survey was to determine the nature and extent of all sources of domestic and industrial pollution within the township, to be used as a basis for evaluating water supply and sewage treatment requirements.

I. GENERAL

The Township of Binbrook is situated in the southeast corner of Wentworth County with the City of Hamilton on the north-west limits. Surface drainage in the township is effected through the Welland River in the southern half of the township, and through Twenty Mile Creek in the northern half of the township. The township is predominantly a farming area with an imperfectly drained silt loam soil. The result is that drainage ranges from poor to fair.

The township is largely rural in nature with a population of 3,291 and an assessment of \$4.72 million. The major

areas of population density are the hamlets of Binbrook, Woodburn and Elfrida.

The area's economy is based largely on agricultural land use and some small industries.

II. WATER USES

1. Municipal Water Supplies

There are no municipal water supply systems in the township.

2. Private Water Supplies

From information obtained during this survey, it appears that no more than two or three homes are serviced from any single source.

The older homes in the township generally use dug wells for their source of water while the newer homes all have drilled wells varying in depth from 30-120 feet. The ground water is characterized by being quite hard, high in iron and high in sulphates concomitant with excessive concentrations of sulphides in some areas. Because of the hardness and high iron content of the ground water, rainwater from cisterns is often used for laundry and bathing. There appeared to be no shortage of water for people on drilled wells.

3. Industrial Water Supplies

The Gos-Gris and Paron Cheese Companies require large volumes of water for manufacture and cleansing operations. The companies rely on deep drilled wells which appear to be adequate. The other industries include a dead stock receiving plant, and two slaughterhouses which use water for cleaning purposes. Drilled wells are also the source of supply and appear to be adequate.

4. Recreational Use

Neither the Welland River nor Twenty Mile Creek are used to any extent for recreational purposes such as bathing, swimming or camping. The only recreational area is at Shady Brook Acres just north of the Hamlet of Binbrook. It consists of a two-acre pond for swimming and boating purposes and some camping area. Water for washrooms and drinking is supplied through a drilled well.

5. Agricultural Uses

The numerous watercourses in the township are used for the watering of farm stock. There was no visible evidence of any irrigation practice.

III. WATER POLLUTION

1. (a) Existing Conditions

There are no municipal facilities for the collection and treatment of domestic sewage within the township. The disposal of sanitary wastes is left to the individual property owners and in most cases consists of septic tank systems. Only systems installed since the advent of the Wentworth County Health Unit have been supervised.

A thorough inspection of conditions throughout the township found no evidence of domestic wastes entering any watercourse except possibly in the Hamlet of Binbrook. Some evidence of

domestic waste residue was found on the bottom of the drainage ditch running through the hamlet. No source was evident however.

(b) Proposed Sewage Works

There are plans at the present time for the construction of a waste stabilization pond to service a proposed subdivision just north of the Hamlet of Binbrook. There are no other known plans for the construction of sewage works at any of the developed areas in the township.

2. Industrial Waste Disposal

There are four waste producing industries in the township. They are discussed separately below:

Gos-Gris Cheese is located on Highway 20. The cheese factory is located on a farm and the 1500 gallons per day of whey produced is sprayed on the fields. The water from clean-up operations is pumped to a long ditch where it is retained. In a very heavy rain some of this water in the ditch would flow to a pond which would act as a lagoon and then flow from there to a tributary of Twenty Mile Creek. It is unlikely that this pond would be a source of pollution. Sample analyses however indicate some impairment of this stream. Run-off from the fields and orchards sprayed with whey may have been responsible.

Paron Cheese is located on a farm on Highway 20 next to Gos-Gris Cheese. During the summer months the cheese plant wastes

are directed to two lagoons and the whey is spray irrigated on the fields. During the winter months the cheese plant wastes are reduced in volume and both the whey and plant wastes are directed to the lagoons. The lagoons are connected in series with the latter pond having an overflow to the nearby creek, tributary to Twenty Mile Creek. On previous investigations no effluent has ever been observed from the lagoons. Seepage and evaporation appear to offset the liquid waste input. Similarly though with Gos-Gris Cheese, runoff from the fields sprayed with whey may have contributed to the impaired condition of the stream.

The Paconi Dead Stock Receiving Plant, located on Highway 20 discharges its wash water to a large septic tank and then to a nearby lagoon. The septic tank is pumped twice per year. There was no effluent visible and nuisance conditions are prevented by the addition of a chemical called Poly-cide. Discharge is effected during periods of high run-off in the spring, and in the fall when the farmers are finished using their fields. The BOD content of the lagoon is very high and when discharged in the fall to the small tributary of Twenty Mile Creek will definitely impair the quality of the water. Either a larger lagoon for better treatment is needed or the effluent should be sprayed on the fields.

Champion Meats is located just off Highway 20 on County Road No. 24. Blood and wash water solids are contained in a holding

tank and hauled away every two weeks. The wash water itself goes to a series of septic tanks and is ultimately disposed of in an extensive tile field. The soil is poor in draining and sometimes ponding occurs over the tile beds, but this ponded water never leaves the property and eventually evaporates.

The Star Brand Meat Packers plant is located on Highway 56 just north of the Hamlet of Binbrook. Since past disposal practices have been unsatisfactory and production has increased, the company has proposed a storage pond and spray irrigation disposal system. This should be in operation by early 1969.

3. Refuse Disposal

The Township of Binbrook maintains an open dump site situated at Lot 5, Block 4, Concession IV, 1 mile west of Highway 56. The dump is located on the side of a gully. During periods of heavy rainfall the leachate from the dump would have access to a nearby watercourse, tributary to the Welland River, and could be a source of pollution. The County Health Unit has indicated that it is now in the process of arranging a suitable refuse disposal site for the joint use of the Townships of Binbrook and Glanford.

4. Discussion of Sample Analyses

A series of samples were taken from the Welland River, Twenty Mile Creek and their respective tributaries. A random

door-to-door survey was also carried out in the Hamlets of Binbrook and Woodburn. Both chemical and bacteriological samples are included in Tables I and II which are appended to this report. Reference should be made to the Appendix for an explanation and the significance of the laboratory analyses.

(a) Stream Samples

Insofar as the Township of Binbrook is concerned, the analyses of the stream samples revealed that the BOD and coliform counts at a number of locations exceeded the Commission objective of 4 ppm and 2400 coliforms per 100 ml respectively for natural watercourses. In particular the following were noted: the Welland River is impaired before it reaches Binbrook Township; the drainage ditch through Binbrook contains domestic waste as evidenced by the higher than natural BOD and the presence of ABS (ABS does not occur naturally); the Twenty Mile Creek tributary paralleling Highway 20 at County Rd. 24 is impaired but the reason is unknown, it appears however that downstream of this location runoff from the Gos-Gris and Paron Cheese properties may be adding further pollutants to the stream; and the Twenty Mile Creek tributary in Concession III, Block 4, is polluted by manure wastes emanating from a local piggery in the area.

(b) Drinking Water Sample

Chemical

The chemical analyses of well water samples collected

in the door-to-door survey in Binbrook and Woodburn are appended in Table I. The results show that all drilled wells have a high hardness content likely due to their origination in limestone. Also, the water is very high in iron and sulphates in most cases. Iron in concentrations greater than the Commission's recommended upper limit of 0.3 ppm has been known to cause staining of laundry and discolouration of fixtures, while sulphates in concentrations greater than 250 ppm may have a laxative effect. Hydrogen sulphide odours are also prevalent in many water supplies. Otherwise the water is of satisfactory chemical quality for domestic consumption.

Bacteriological

A total of thirty-one samples were obtained from private wells in the area. Of that number twenty-four indicated the presence of coliform organisms with sixteen of the samples indicating the presence of E. Coli. Escherichia Coli is found in the intestinal track of man and other warm blooded animals and is used as an indicator of contamination of a water supply.

Of the thirty-one samples obtained, nine were from dug wells and four from cisterns while the remainder were obtained from drilled wells. Dug wells and cistern supplies are more susceptible to pollution than drilled wells due to their physical makeup. For example, dug wells are relatively shallow by nature and therefore would collect a great deal of surface water especially during periods of heavy runoff. One of the methods

commonly used to obtain water for cisterns is by draining eavestroughs into them. Thus any contaminants on the surface area drained by the eavestroughs would be directed to the cistern.

The large percentage of adverse samples could be attributed to a combination of poor well construction and/or defective septic tank systems. In this event the individual wells and septic tank systems should be inspected to determine, in the case of the wells, that a proper sanitary seal is on the well, the casing is in sound condition, and the area around the well casing is perfectly sealed; and for the septic tank systems if they are functioning satisfactorily and if their proximity to the wells is a contributing factor to the contaminated wells. After this has been completed another survey should be carried out to determine if the problem still exists. If it is found that the wells are still producing adverse bacteriological results then a communal water supply should be installed.

IV RECOMMENDATIONS

1. The individual wells and septic tank systems should be inspected to determine if they have been properly constructed and are functioning satisfactorily.

2. After the above has been completed another survey should be conducted to determine if the above was successful in ensuring safe water supplies.

3. If the wells still produce adverse bacteriological results, a communal water supply should be installed.

Prepared by: _____

L.W. Bracewell,
Engineer,
Division of Sanitary Engineering.

/ek

TABLE - I
TOWNSHIP OF BINBROOK

PRIVATE WELLS

<u>LOCATION</u>	<u>DATE</u>	<u>HARDNESS</u> <u>AS CaCO₃</u>	<u>ALKALINITY</u> <u>AS CaCO₃</u>	<u>IRON</u> <u>AS Fe</u>	<u>CHLORIDE</u> <u>AS CL</u>	<u>SULPHATE</u> <u>AS SO₄</u>	<u>PH</u> <u>AT LAB</u>	<u>ANIONIC</u> <u>DETERGENTS</u> <u>AS ABS</u>	<u>TOTAL</u> <u>COLIFORMS</u> <u>PER 100 ML</u>	<u>FAECAL</u> <u>COLIFORMS</u> <u>PER 100 ML</u>
B. WHITWELL - BINBROOK	SEPT. 12/68	378	348	0.13	21	34	7.4	-	280	6
B. COULTHART "	"	388	304	0.05	42	104	7.5	-	14	0
P. PREST "	"	240	76	1.62	2	92	7.6	-	6	0
P. BROWN "	"	284	112	0.17	3	280	7.9	-	400	346
L. RUDDLESDIH "	"	46	34	0.26	1	9	7.9	-	0	0
J.N. SWITZER "	"	444	328	0.5	70	90	7.5	-	6	0
F. PLACE "	"	348	104	0.78	4	360	7.9	-	0	0
W. LAKE "	"	48	41	0.09	1	7	9.6	-	0	0
W. WOODS "	"	240	178	1.09	57	-	8.1	-	0	0
A. YOUNG "	"	160	44	1.43	24	-	8.3	-	0	0
A. PRICE "	"	-	-	-	-	-	-	-	2700	500
G. WHITWELL "	"	378	348	0.13	21	-	7.4	-	68	16
P. BRITTAIN "	"	-	-	-	-	-	-	-	198	4
L. LAIDMAN "	"	444	303	2.77	39	-	7.7	-	144	0
A. HARRIS "	"	426	292	0.80	31	-	7.8	-	200	4
D. MARTIN-HWY. 56, CONC. 11	"	528	260	305	9	-	7.8	-	0	0
R.A. BINGHAM-HWY. 56	SEPT. 13/68	354	284	5.00	14	63	8.0	0.0	39+	0
R. FLETCHER - FLETCHER'S RD.	"	364	279	0.27	4	105	7.5	0.0	-	39
G. MARTIN - HWY. 50	"	44	34	0.42	3	8	7.4	0.1	-	39+

TABLE - I CONT'D.

TOWNSHIP OF BINBROOKPRIVATE WELL

<u>LOCATION</u>	<u>DATE</u>	<u>HARDNESS AS CaCO_3</u>	<u>ALKALINITY AS CaCO_3</u>	<u>IRON AS FE</u>	<u>CHLORIDE AS CL</u>	<u>SULPHATE AS SO_4</u>	<u>PH AT LAB</u>	<u>ANIONIC DETERGENTS AS ABS</u>	<u>TOTAL COLIFORMS PER 100 ML</u>	<u>FAECAL COLIFORMS PER 100 ML</u>
J. McDOUGALL - WOODBURN	SEPT. 13/68	542	302	0.23	88	131	7.3	0.0	-	39+
E. HUGHES "	"	52	259	0.7	9	440	7.5	0.0	39+	0
W.H.J. PETERS "	"	434	304	0.98	30	93	7.2	0.0	-	39
R. CARTER "	"	1032	349	7.35	23	670	7.0	0.0	39+	0
H. SMITH "	"	712	358	11.8	77	280	7.2	0.0	5	0
D. MITCHELL "	"	562	349	3.30	38	246	7.2	0.0	-	39
D. BAILEY "	"	562	357	0.34	14	163	7.4	0.0	-	15
C. KENNEY "	"	296	234	9.13	36	138	7.2	0.0	-	39+
F. HERVE "	"	2	325	0.43	37	90	7.6	0.0	-	39+
H. WHITTAKER "	"	440	213	1.58	7	240	7.4	0.0	-	39
D. VERI "	"	438	313	0.28	28	80	7.5	0.0	-	39
D. CROSSMAN "	"	4	252	0.35	13	490	7.4	0.0	5	0
J. LEWIS "	"	20	307	0.23	23	1010	7.5	0.0	-	-
H. LESTER "	"	668	269	0.14	42	350	7.3	0.0	-	-
C. EVANS "	"	180	41	0.82	3	246	8.0	0.0	-	-

TABLE - II

TOWNSHIP OF BINDROOK

STREAM SAMPLES

<u>SAMPLE NO.</u>	<u>LOCATION</u>	<u>DATE</u>	<u>5-DAY BOD</u>	<u>TOTAL</u>	<u>SOLIDS SUSP.</u>	<u>DISS.</u>	<u>ANIONIC DETERGENTS AS ABS</u>	<u>PHENOLS IN PPB</u>	<u>COLIFORMS PER 100 ML</u>
PW-67.7	WELLAND RIVER AT WEST TWP. LINE	SEPT. 9/68	2.4	1672	45	1627	-	-	160
PJT-67.5	WELLAND RIVER TRIBUTARY AT WEST TOWNSHIP LINE	"	2.2	428	13	415	-	-	690
PW-70.9	WELLAND RIVER AT WOODBURN RD.	"	2.4	1130	28	1102	0.0	-	920
PW-70.9	WELLAND RIVER AT HWY. #56	"	11.0	608	100	508	0.0	-	680
PJT-74.3	WELLAND RIVER TRIBUTARY AT HWY. #56	"	3.8	999	60	939	0.0	-	340
PJT-78.2	WELLAND RIVER TRIBUTARY AT HWY. #56 IN BINDROOK	SEPT. 10/68	3.6	748	87	721	-	0	370
PW-78.00	BINDROOK DRAIN SOUTH OF VILLAGE	SEPT. 12/68	5.0	978	25	853	0.2	-	500,000
PW-79.3W	CATCHBASIN AT HWY. #56 AND BINDROOK RD.	"	1.4	400	87	373	0.2	-	7,000
PW-79.6D	BINDROOK FIRE RESERVOIR	"	4.2	252	52	200	0.1	-	1,310
PW-80.8	WELLAND RIVER AT WEST TWP. LINE	SEPT. 10/68	6.6	364	20	338	-	0	270
JT-84.0	TWENTY MILE CREEK AT WEST TWP. LINE	SEPT. 9/68	1.3	386	9	377	-	-	590

T A B L E - II CONT'D.

TOWNSHIP OF BINBROOK

STREAM SAMPLES

<u>SAMPLE NO.</u>	<u>LOCATION</u>	<u>DATE</u>	<u>5-DAY BOD</u>	<u>TOTAL</u>	<u>SOLIDS SUSP.</u>	<u>DISS.</u>	<u>ANIONIC DETERGENTS AS ADS</u>	<u>PHENOLS IN PPB</u>	<u>COLIFORMS PER 100 ML</u>
JTT-35.0	TWENTY MILE CREEK TRIBUTARY AT WOODBURN RD.	SEPT. 9/68	4.4	302	9	383	0.0	3	70,000
JT-36.5	TWENTY MILE CREEK AT WOODBURN ROAD	"	2.2	390	9	381	0.0	-	1,040
JTT-36.2	TWENTY MILE CREEK TRIBUTARY AT GRIS-GROS CHEESE	SEPT. 10/68	9.2	402	34	368	-	4	490,000
JT-36.3	TWENTY MILE CREEK AT COUNTY ROAD #24	"	2.6	430	38	392	-	6	840
JTT-37.2	TWENTY MILE CREEK TRIBUTARY AT COUNTY ROAD #24	"	5.0	568	47	521	-	6	14,000
JT-35.70	DITCH AT WOODBURN ROAD	SEPT. 12/68	3.6	262	17	245	0.0	-	-
JT-40.1	TWENTY MILE CREEK AT HWY. #50	SEPT. 10/68	2.8	436	40	396	-	0	24,000
JTT-40.4	TWENTY MILE CREEK TRIBUTARY AT HWY. #56 AT BELLMOORE PUBLIC SCHOOL	"	23	646	45	601	-	6	145,000
JTT-40.9	TWENTY MILE CREEK TRIBUTARY UP- STREAM OF BELLMOORE PUBLIC SCHOOL	"	2.2	402	25	377	-	2	1,380

APPENDIX I

SIGNIFICANCE OF LABORATORY ANALYSES

Bacteriological Examination

The presence of coliforms indicates pollution from human or animal excrement, or from some non-faecal forms. The objectives for surface water quality in Ontario is a maximum of 2400 organisms per 100 millilitres.

The OWRC Laboratories employ the Membrane Filter (MF) technique of examination to obtain a direct enumeration of coliform organisms. The Department of Health Laboratories use the Most Probable Member (MPN) enumeration and coliform counts are reported as Total Coliform Organisms (TC) and Faecal Coliform Organisms (FC).

Sanitary Chemical Analyses

Biochemical Oxygen Demand (BOD)

Biochemical Oxygen Demand is reported in parts per million (PPM) and is an indicated of the amount of oxygen required for the stabilization of decomposable organic or chemical matter in water. The completion of the laboratory test required five days, under the controlled incubation temperature of 20° Centigrade.

The OWRC objective for surface water quality is an upper limit of four (4) ppm.

Solids

The value for solids, expressed in parts per million, is the sum of the values for the suspended and the dissolved matter in the water. The concentration of suspended solids is generally

the most significant of the solids analyses with regard to surface water quality. The effects of suspended solids in water are reflected in difficulties associated with water purification, decomposition in streams and injury to the habitat of fish.

Nitrogen

Ammonia Nitrogen or sometimes called free ammonia is the insoluble product in the decomposition of nitrogenous organic matter. It is also formed when nitrates and nitrites are reduced to ammonia either biologically or chemically. Some small amounts of ammonia, too, may be swept out of the atmosphere by rain water.

The following values may be of general significance in appraising free ammonia content: Low 0.015 to 0.03 ppm; moderate 0.03 to 0.10 ppm; high 0.10 or greater.

Total Kjeldahl is a measure of the total nitrogenous matter present except that measured as nitrite and nitrate nitrogens. The Total Kjeldahl less the Ammonia Nitrogen measures the organic nitrogen present. Ammonia and organic nitrogen determinations are important in determining the availability of nitrogen for biological utilization. The normal range for Total Kjeldahl would be 0.1 to 0.5 ppm.

Nitrite Nitrogen

Nitrite is usually an intermediate oxidation of ammonia. The significance of nitrites, therefore, varies with their amount, sources, and relation to other constituents of the

sample, notably the relative magnitude of ammonia and nitrite present. Since nitrite is rapidly and easily converted to nitrate, its presence in concentrations greater than a few thousandths of a part per million is generally indicative of active biological processes in the water.

Nitrate Nitrogen

Nitrate is the end product of aerobic decomposition of nitrogenous matter, and its presence carries this significance. Nitrate concentration is of particular interest in relation to the other forms of nitrogen that may be present in the sample. Nitrates occur in the crust of the earth in many places and are a source of its fertility.

The following ranges in concentration may be used as a guide: low less than 0.1 ppm; moderate 0.1 to 1.0 ppm; high greater than 1.0 ppm.

Anionic Detergents as ABS

The presence of anionic detergents as ABS is an indication that domestic waste is present.

Phenols

The presence of phenol or phenolic equivalents is generally associated with discharges containing petroleum products, or with wastes from some industries. It is generally conceded that adequate protection of surface waters will be provided if the concentration of phenols in waste discharges does not exceed

20 parts per billion (ppb). Phenolic type waste can cause objectionable conditions in water supplies and might taint the flesh of fish.

Iron

Water for domestic use should contain less than 0.3 parts per million of iron in order to avoid objectionable tastes, staining and sediment formation. Iron concentrations of not greater than 17 parts per million in waste discharges should permit adequate protection of surface waters.

APPENDIX

IMPLEMENTATION OF WATER AND SEWAGE WORKS PROGRAMS

Currently, there are three general methods which may be utilized for implementing sewage and water works programs. These are: 1) to enter into an agreement with the OWRC for the construction of the treatment and collector works with an obligation to pay the debt retirement and operating charges over the term of the agreement with the facility reverting to the municipality at the end of the term of the agreement, 2) by requesting the provision of service from a Provincially-owned project, and 3) by proceeding with the construction independently and meeting capital costs by the sale of debentures.

OWRC/MUNICIPAL PROJECTS

For the construction of water and sewage works under agreement with this Commission, the works are provided and developed under Sections 39 to 46 of the Ontario Water Resources Commission Act.

For this type of arrangement, the Commission utilizes a sinking fund and consequently the annual payments are based on a specific debt retirement period and the payments are unchanged for the period of the agreement. This type of project may be financed over a period of time up to a maximum of thirty years. The annual charges for projects constructed under this agreement are determined as follows:

1. Capital Repayment

As noted, OWRC financing is by the sinking fund method and an annual payment of approximately 2 per cent of the capital

cost is required to retire a debt over a thirty-year period.

2. Interest

On new Commission projects, interest is calculated at the current rate.

3. Reserve Fund

To provide money for repairs and replacements, Section 40 of The Ontario Water Resources Commission Act provides for the establishment of a reserve fund by the Commission. It is important to note that this fund is established in the name of the municipality and the balance consequently earns interest. It has now been established by Commission minute that the reserve fund billing for each project shall continue only until the fund reaches an amount of ten times the initial annual billing and the reserve fund billing shall be re-imposed only when the fund has been depleted to 80 per cent or less of the maximum amount.

4. Operating Costs

Under OWRC agreement, the municipality is responsible only for the operating costs directly attributed to the project in the municipality. Therefore, no charges are made by the Commission for the services of head office personnel who are available as required to advise on the satisfactory operation and maintenance of the project.

PROVINCIALY-OWNED WORKS

In June, 1967, the Honourable J. R. Simonett, Minister of Energy and Resources Management, made an announcement which expanded the authorization of this Commission for the provision of water supply and sewage treatment facilities. This new program allows the Commission to construct entire water and sewage works facilities for small municipalities. The capital costs of these can be amortized over a 40 year period.

A slight variation of this program could be implemented in that the municipality may request that this Commission provide only the major water and sewage works facilities as Provincially-owned works, and develop the water distribution and sewage collector systems under the standard type of Commission project. It would appear that where applicable, it would be more advantageous for the municipality to proceed on the basis of requesting this Commission to develop entire systems as Provincially-owned works.

The associated cost of supplying these works, including amortization of capital costs, together with operating and maintenance charges, will be recovered by the sale of service to the affected municipalities by rates determined on a usage basis. These facilities will be wholly-owned by the Province of Ontario and the arrangements for service will be formalized by contracts between the Commission and the municipality concerned. The installations will be operated entirely at cost with appropriate provision for adjustment in rate.

DEVELOPMENT

If a municipality, after considering the alternatives, wishes this Commission to consider Provincially-financed projects, application forms should be completed and submitted together with a resolution of the Municipal council. A draft of the suggested wording of the resolution is included with the application forms.

If the proposed works are to be built by the municipality on its own initiative or as a formal project under agreement with this Commission, it is required that the Council retain a consulting engineer to prepare preliminary engineering reports on the proposed work. If a Provincial system is contemplated, no action should be taken with respect to retaining a consulting engineering firm as the Commission will designate a consulting engineer to carry out the Provincial portion of the work and it would be advantageous if the municipal portion be studied and reported on by the same engineer.

TOWNSHIP OF SALT FLEET

HIGHWAY NO. 53

HIGHWAY NO. 20



LEGEND

PW-70.9 - STREAM SAMPLING POINT
SHOWING MILEAGES

PW-78.0 - OUTFALL SHOWING STREAM
AND MILEAGES

- TYPE OF OUTFALL
D DRAINAGE OR DITCH
W STORM SEWER

ONTARIO WATER RESOURCES COMMISSION

TOWNSHIP OF BINBROOK
WATER POLLUTION SURVEY

1968

SCALE: 0 1000 2000 3000 FEET

DRAWN BY: K. INAMOTO

DATE: JANUARY 24, 1969

CHECKED BY: L.B.

DRAWING NO: 69-13-DE